



### Figure 1

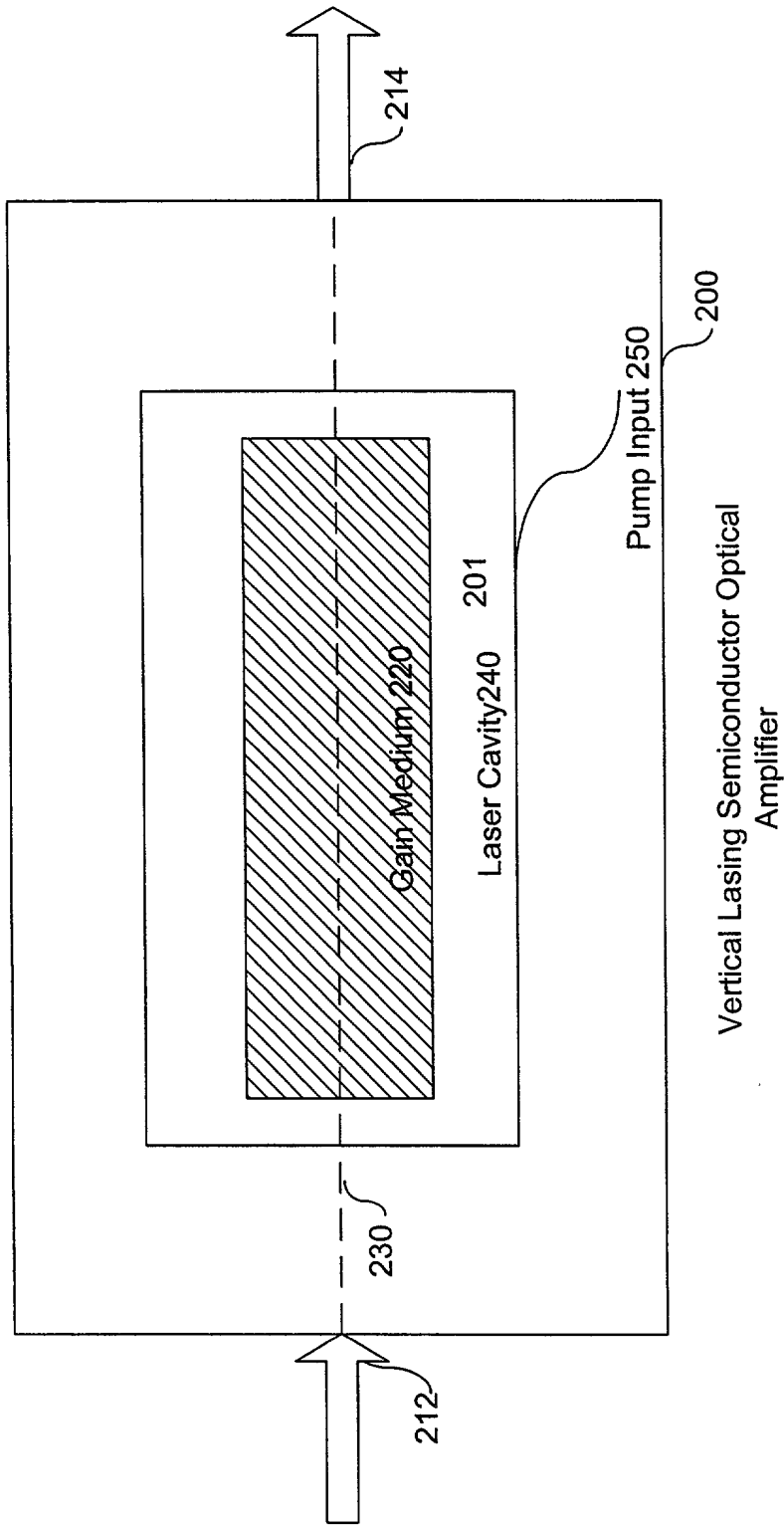


Figure 2

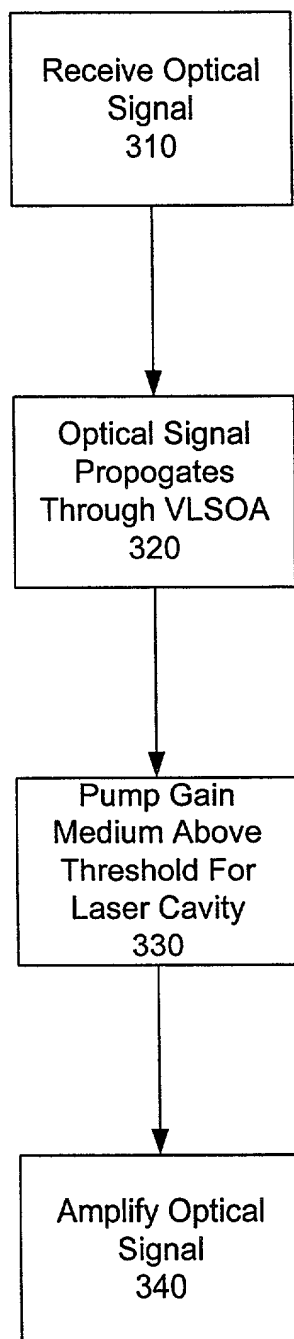


Figure 3

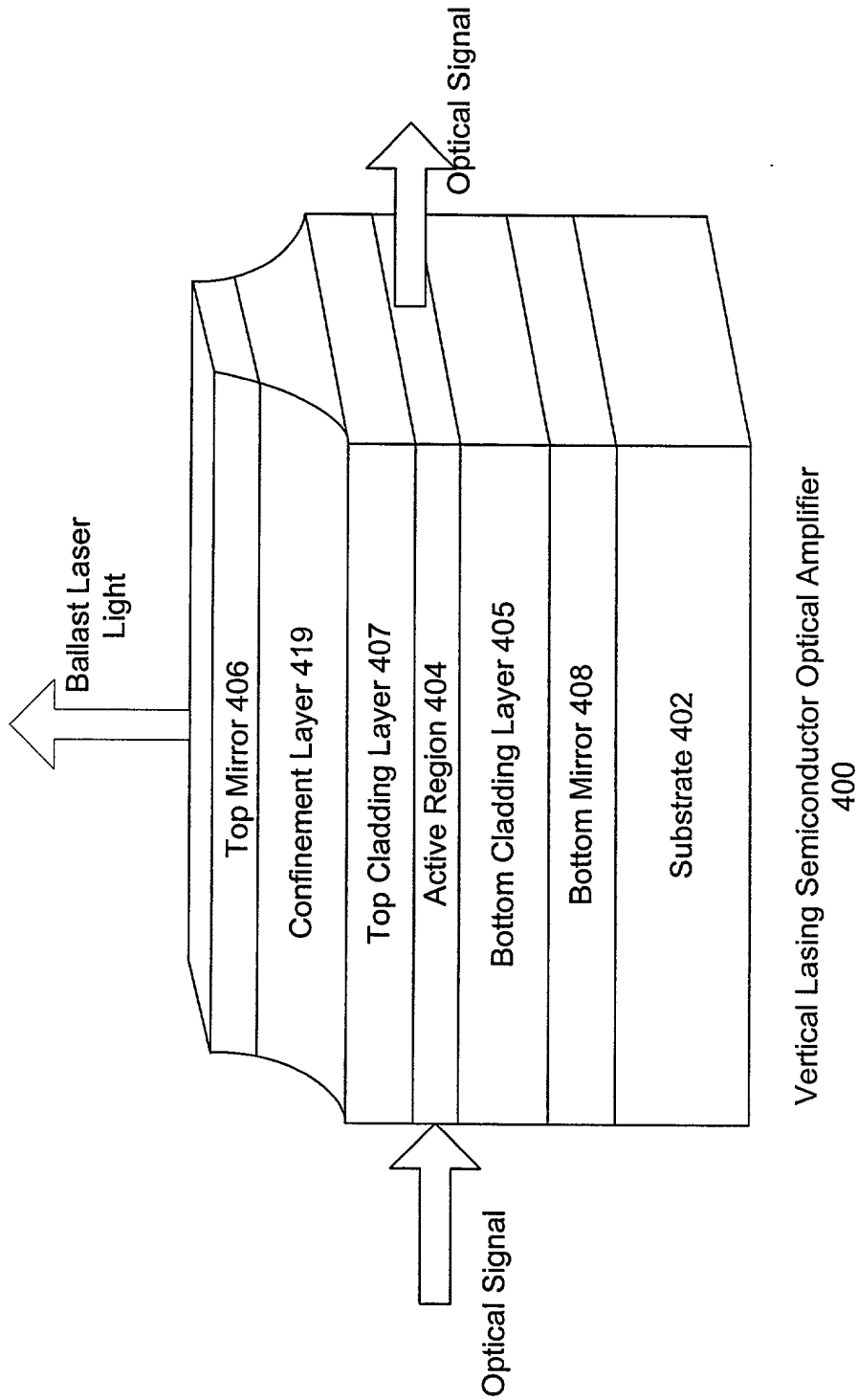
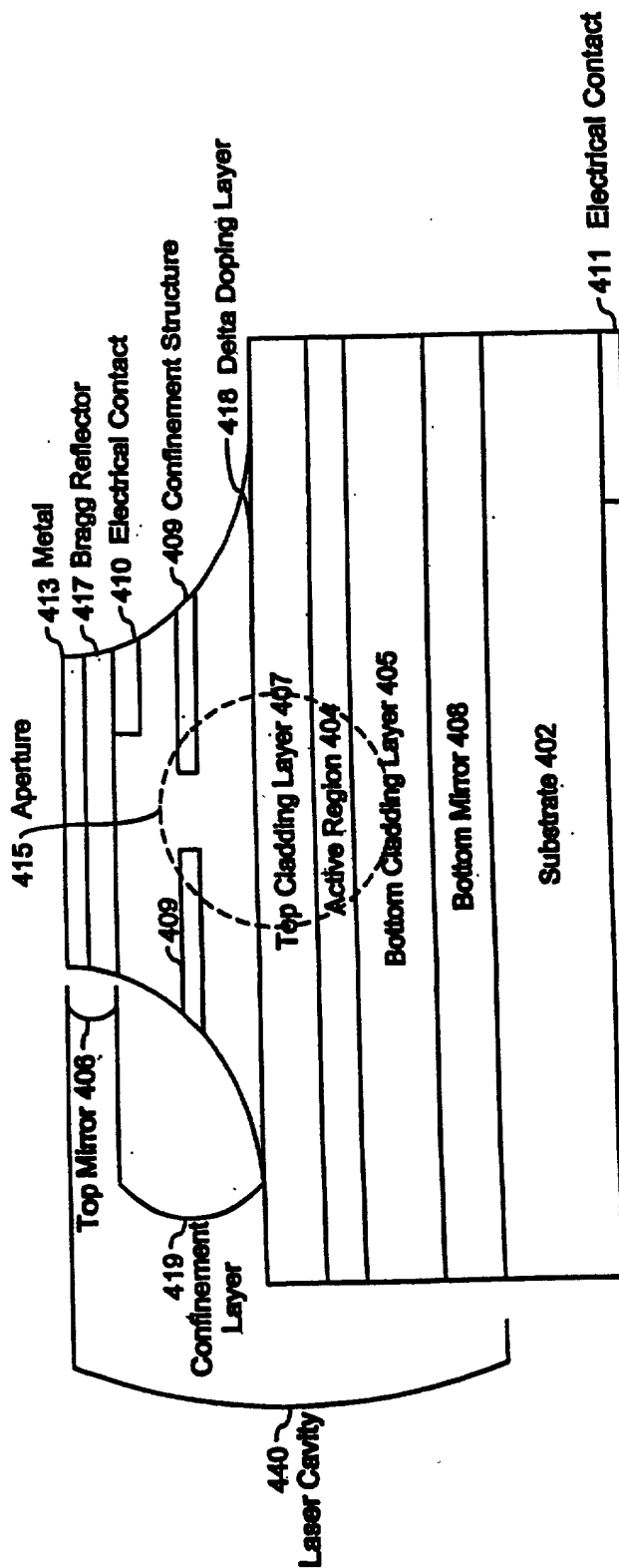
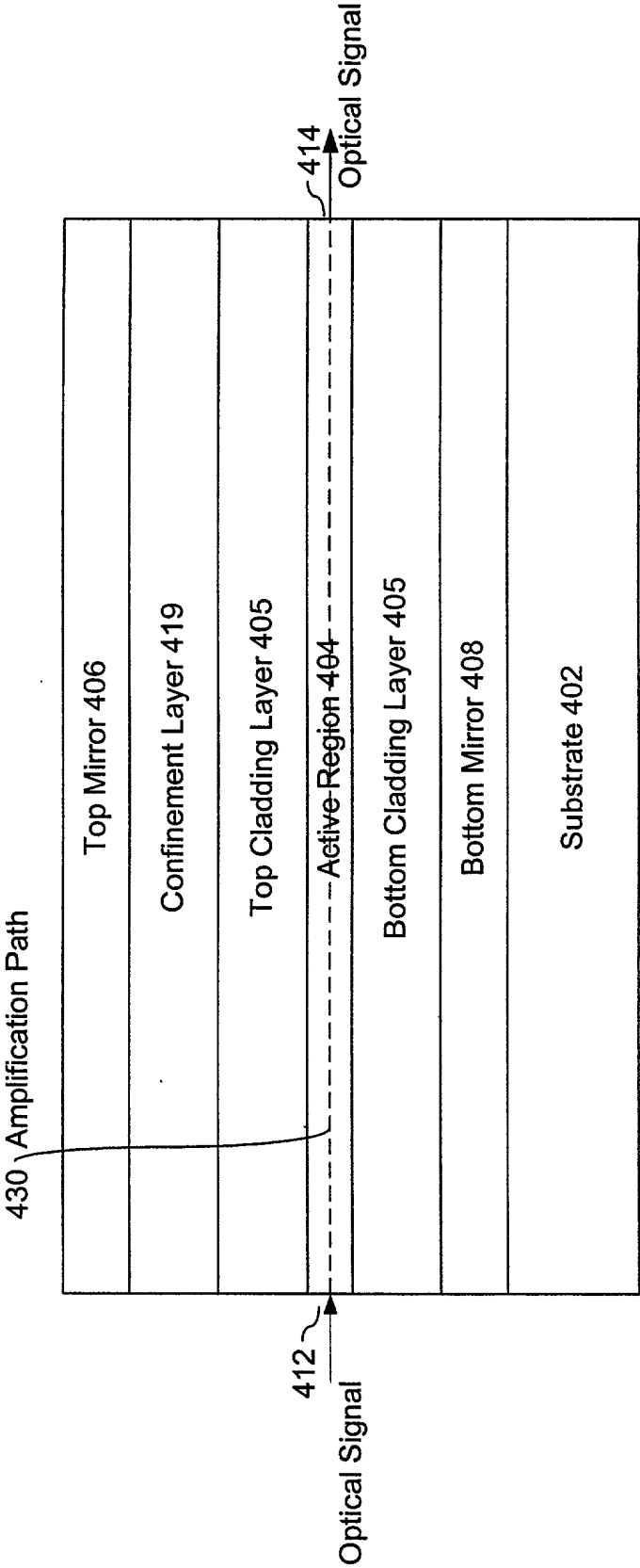


Figure 4A



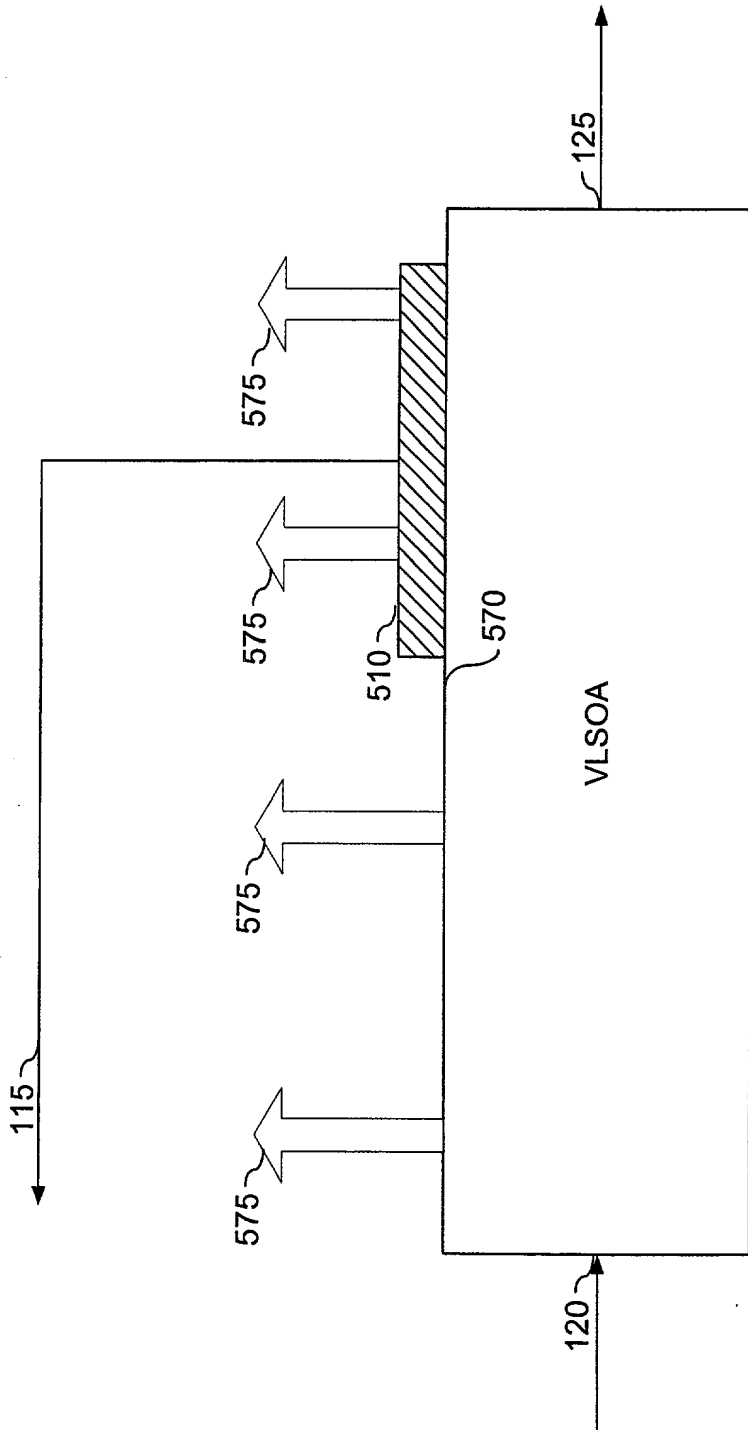
Vertical Lasing Semiconductor Optical Amplifier 400

Figure 4B



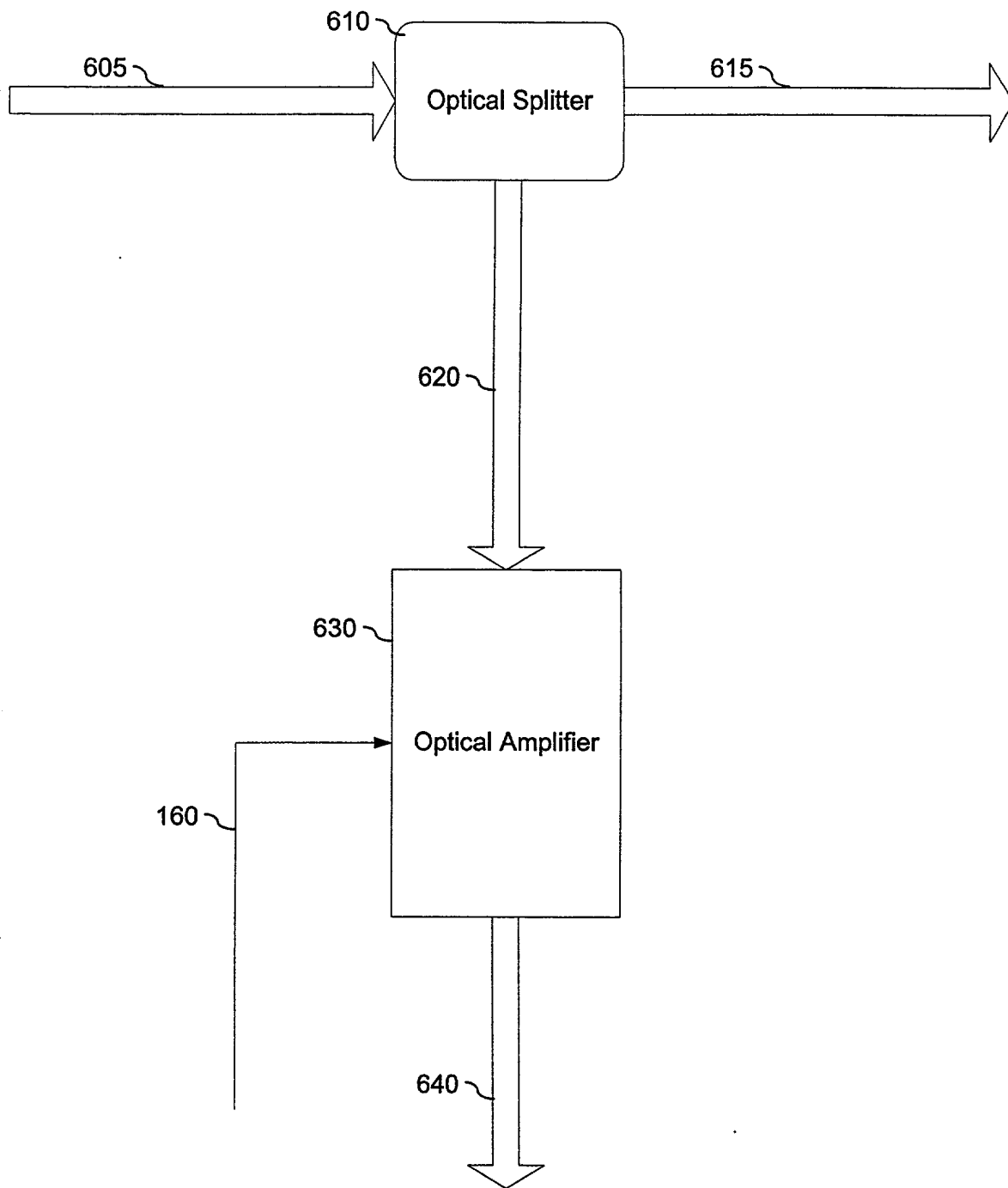
Verical Lasing Semiconductor Optical Amplifier  
400

Figure 4C



Vertical Lasing Semiconductor Optical Amplifier  
500

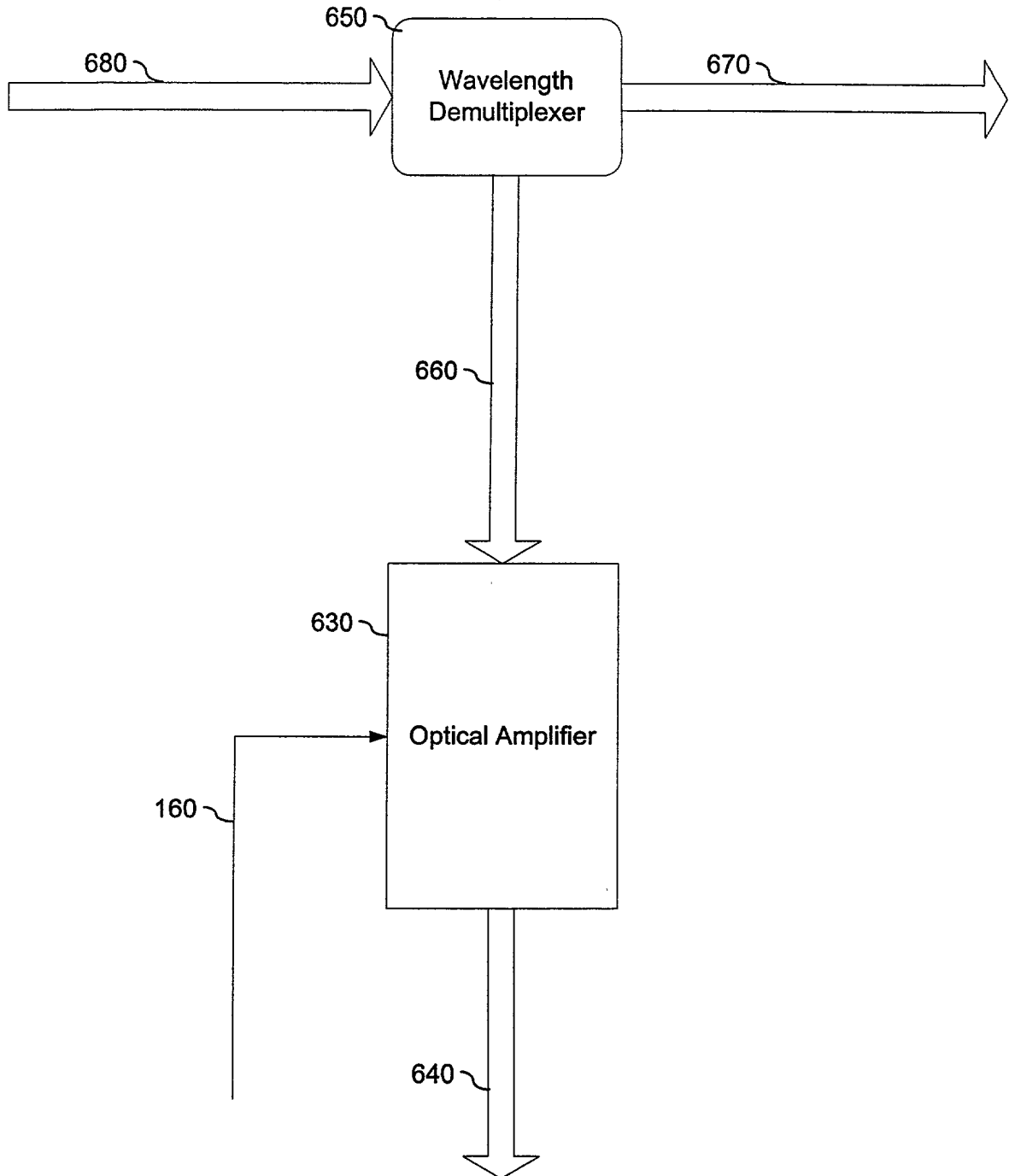
Figure 5



Optical Routing Node 170

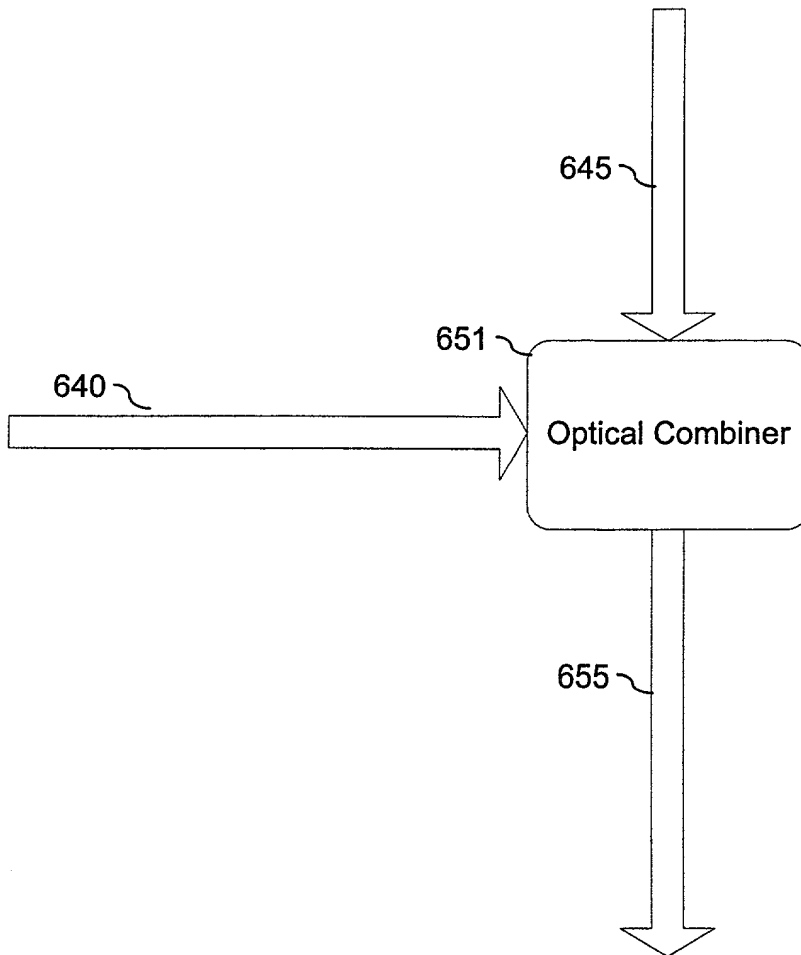
Figure 6A





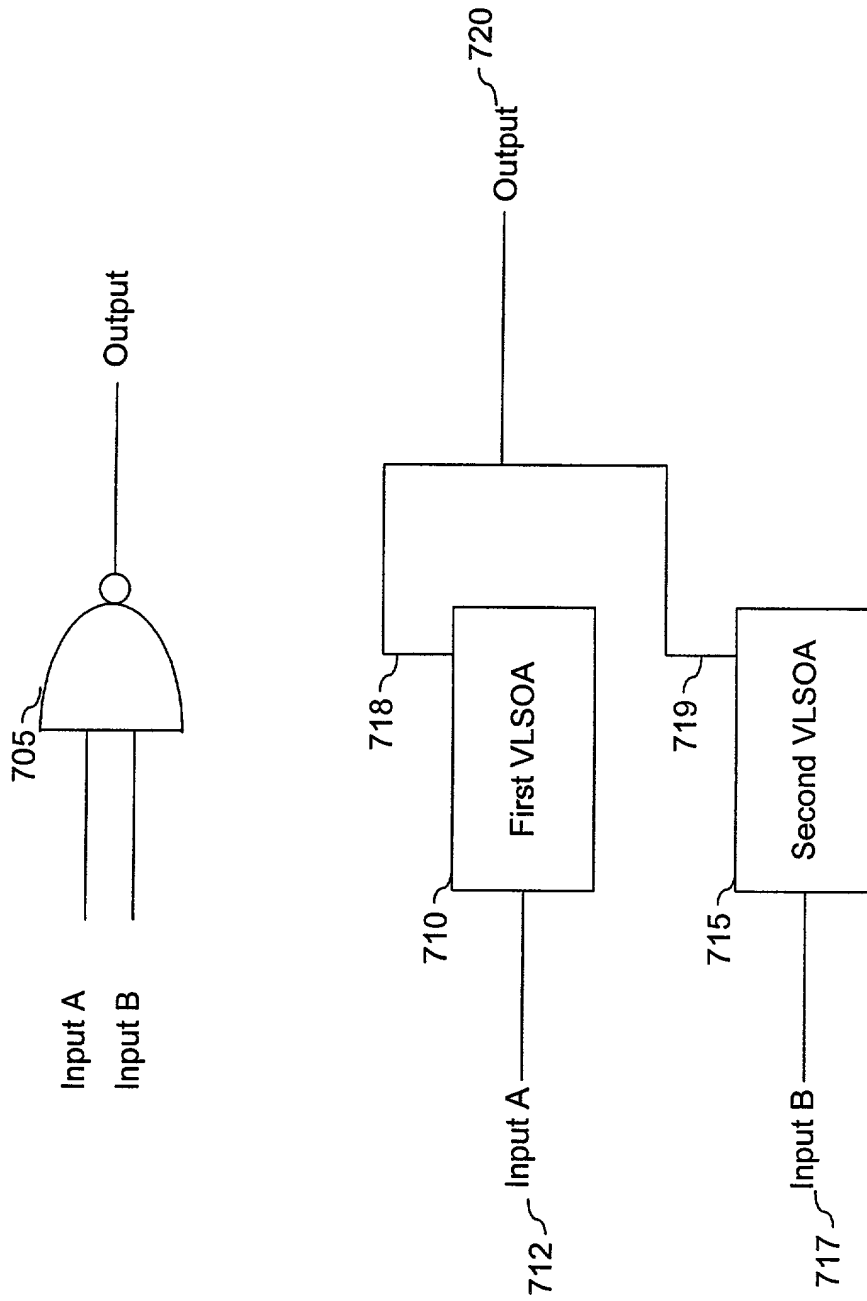
Optical Routing Node 170

Figure 6B



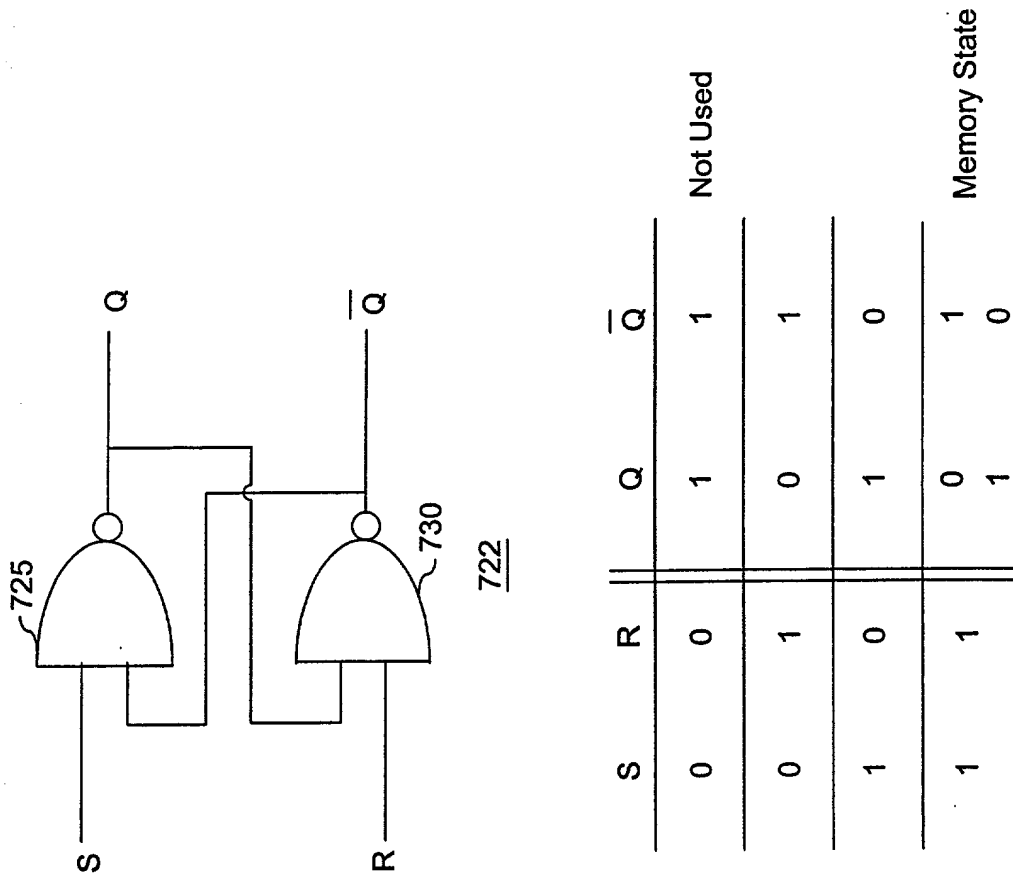
Optical Combiner 151

Figure 6C



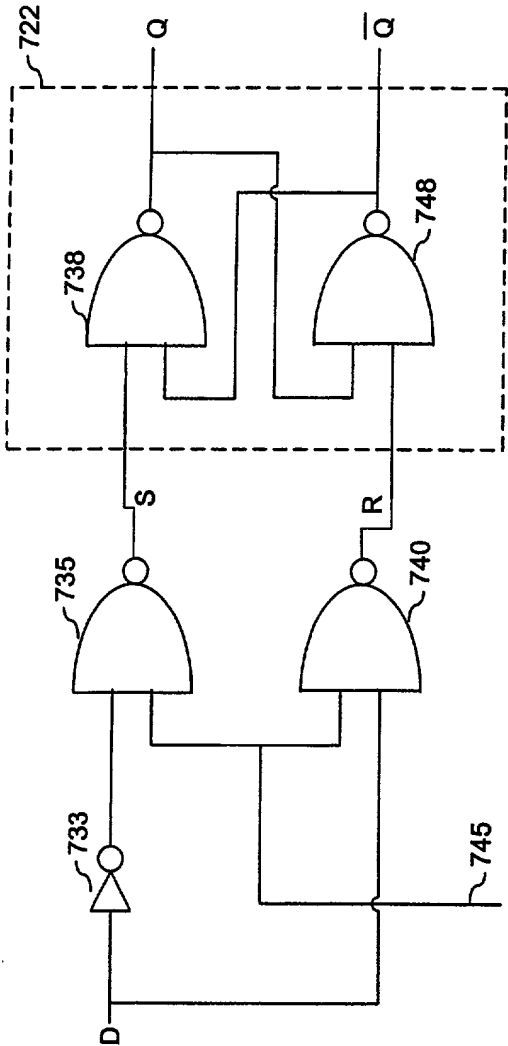
Optical NAND Gate 700

Figure 7A



Optical Flip-Flop

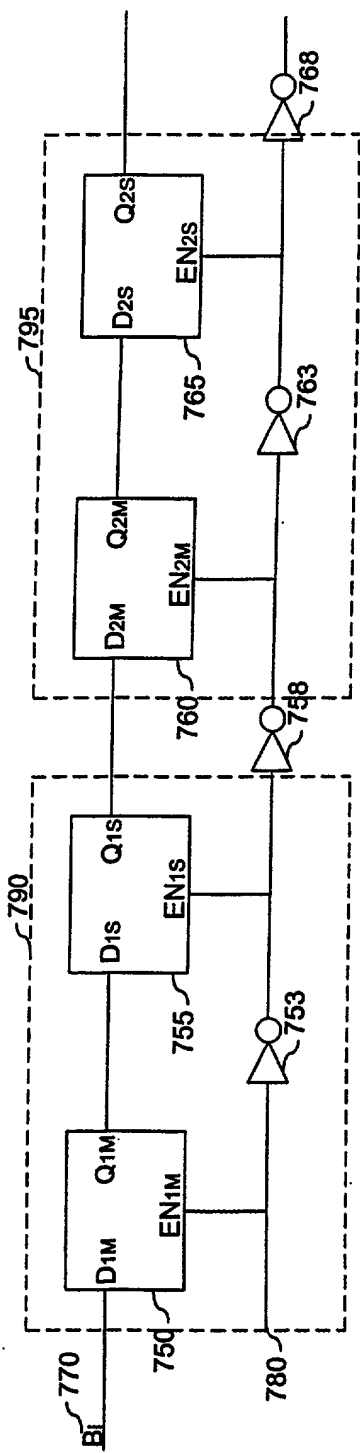
Figure 7B



732

D	Enable	Q	Q
0	0	Memory State	
1	0	Memory State	
0	1	0	1
1	1	1	0

Optical Buffer Element  
Figure 7C



775

Control	D1M	Q1M	Q1S	Q2M	Q2S
1	B1	B1			
0		B1	B1		
1	B2	B2	B1	B1	
0		B2	B2	B1	B1

Buffer Array  
Figure 7D

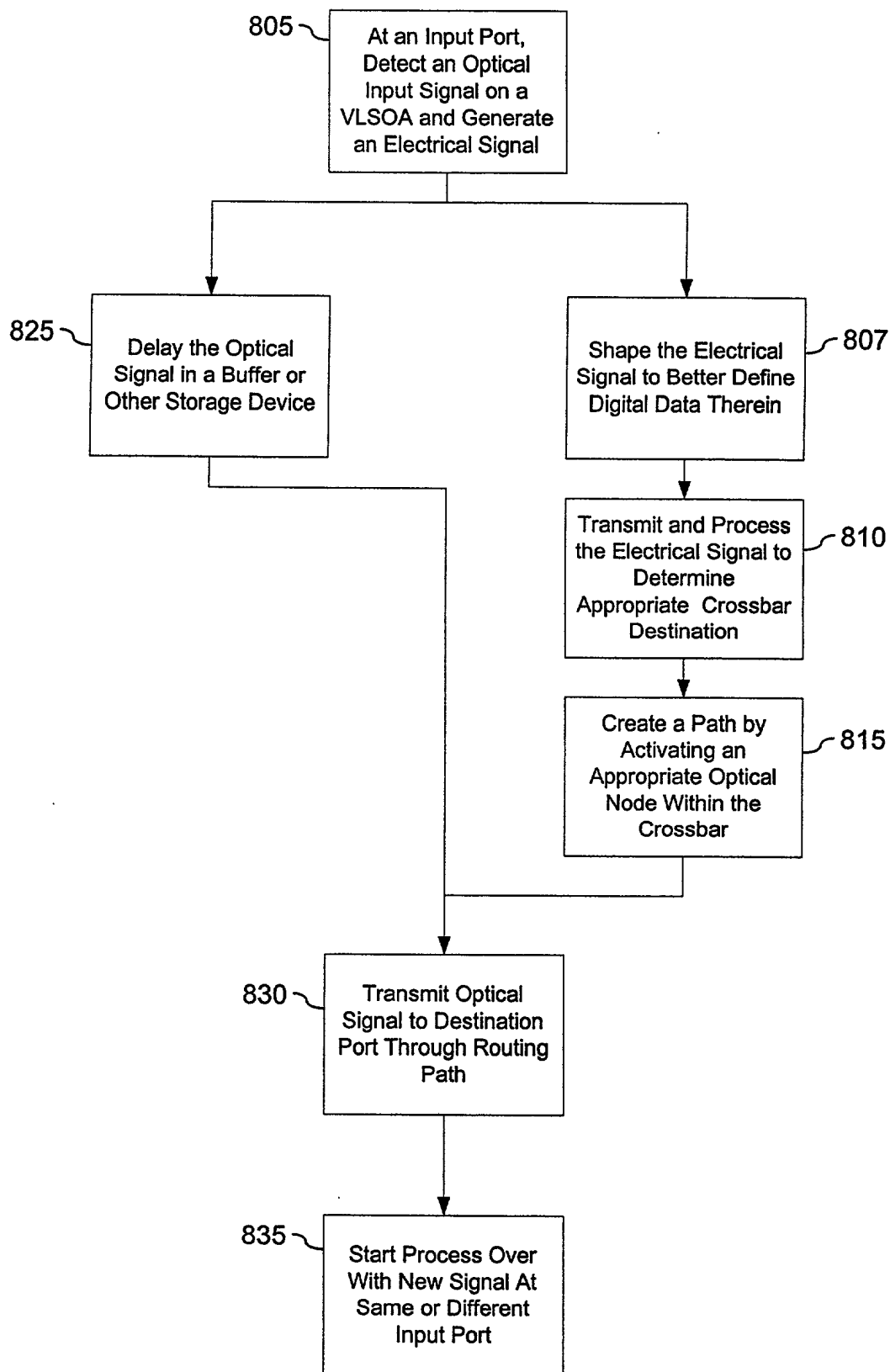


Figure 8